

21

during the demodulation of the broadcast channel reference symbols, demodulating the broadcast channel data symbols; and

combining the broadcast channel data symbols demodulated in the preceding step for each transmission path identified between the base station and the mobile station whereby the signal to noise ratio of a received message is improved.

4. A method as in claim 1 including the further step, following the step of demodulating the traffic channel data symbols, of:

combining the traffic channel data symbols for each transmission path identified between the base station and the mobile station, whereby the signal to noise ratio of a received message is improved.

5. A method as in claim 4 wherein the transmitted broadcast channel data and reference symbols are spread with a predetermined long code, unique to each base station, in which the step of identifying at least one transmission path between the base station and the mobile station includes identifying the long code used to spread the broadcast channel message received on each transmission path, whereby a base station is identified, and in which the step of despreading at least one received communication for each said transmission path identified between the base station and the mobile station includes generating the long code identified in the step of identifying at least one transmission path between the base station and the mobile station to despread the broadcast channel reference and data symbols, and the traffic channel reference and data symbols.

6. A method as in claim 5 wherein each base station spreads the broadcast channel special timing symbol with only a predetermined first short code, wherein each mobile station has at least a first matched filter to despread the first short code, and in which the despreading of every received broadcast channel yields the identification of distinct transmission paths.

7. A method as in claim 6 wherein each mobile station includes a second matched filter, with the first matched filter operatively connected to a first antenna and the second matched filter operatively connected to a second antenna, and in which the step of identifying at least one transmission path between the base station and the mobile station includes the identification of transmissions paths from the base station to each of the mobile station antennas, whereby the diversity of the mobile station receiver is enhanced with the use of independent transmission paths.

8. A method as in claim 6 wherein the broadcast channel data and reference symbols are spread with a predetermined second short code, wherein the transmitted broadcast and traffic channel messages are modulated at a first chip rate, wherein the mobile station includes a broadcast channel RAKE receiver with a plurality of fingers, in which the step of despreading at least one received communication for each said transmission path assigns a broadcast channel RAKE receiver finger to each transmission path identified in the step of identifying at least one transmission path between the base station and the mobile station to generate short and long codes, and in response to generated short and long codes, generating a clock signal at the first chip rate, whereby the chip rate is generated for use with every channel of the assigned transmission path.

9. A method as in claim 8 wherein each base station assigns each mobile a third short code, unique to each mobile station, wherein the base station spreads the traffic channel message to a mobile station with its assigned third short code, wherein each mobile station includes a traffic

22

channel RAKE receiver with a plurality of fingers, in which the step of despreading at least one received communication for each said transmission path includes multiplying the broadcast channel data and reference symbols by the long code, to generate a long code despread signal, and including further sub-steps of the step of despreading at least one received communication for each said transmission path, of:

for each transmission path identified in the step of identifying at least one transmission path between the base station and the mobile station, identifying the transmitted traffic channel messages spread with the mobile station's third short code;

for each transmission path identified in the step of identifying at least one transmission path between the base station and the mobile station, assigning a traffic channel RAKE receiver finger to the corresponding broadcast channel RAKE receiver finger assigned in the step of despreading at least one received communication for each said transmission path;

in response to the first chip rate clock signal generating the third short code; and

multiplying the long code despread signal by the third short code to completely despread the traffic channel message.

10. A method as in claim 9 wherein each mobile station includes a transmitter, in which the step of identifying at least one transmission path between the base station and the mobile station includes receiving communications from at least two base stations, a first base station and a second base station, and includes identifying at least one transmission path between each base station and the mobile station, and including the further steps, following the step of despreading at least one received communication for each said transmission path, of:

in response to the despreading of the broadcast channel of the first base station, transmitting a request to the second base station to adjust the timing of the traffic channel transmission, whereby the timing differences between the first and second base stations are minimized;

receiving the adjusted traffic channel transmission of the second base station; and

in response to the step of combining the traffic channel data symbols for each transmission path identified between the base station and the mobile station, summing the combined traffic channel demodulated data symbols for the first and second base station, whereby diversity is increased with the use of two base stations.

11. A method as in claim 1 wherein broadcast and traffic control messages are organized into a series of time multiplexed slots, and in which the step of estimating weights and phase shifts to apply to data symbols includes broadcast and traffic channel RAKE receivers estimating weights and phase shifts to apply, to the demodulation of traffic channel data symbols, through an interpolation process using the weight and phase shift estimates from present, as well as succeeding slots.

12. A method as in claim 1 wherein broadcast and traffic control messages are organized into a series of time multiplexed slots, and the traffic channel data symbols include a transmit power control (TPC) bit, in which the step of demodulating the traffic channel data symbols includes demodulating the TPC bit with the traffic channel data symbols, and in which the step of estimating weights and phase shifts to apply to data symbols includes broadcast and traffic channel RAKE receivers estimating weights and